

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
1 December 2005 (01.12.2005)

PCT

(10) International Publication Number
WO 2005/115060 A1

(51) International Patent Classification⁷: H05B 33/12,
33/14, 33/22

Hase, Atsugi-shi, Kanagawa, 2430036 (JP). SEO, Satoshi [JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP).

(21) International Application Number:
PCT/JP2005/009313

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 17 May 2005 (17.05.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2004-152491 21 May 2004 (21.05.2004) JP

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): SEMICONDUCTOR ENERGY LABORATORY CO., LTD. [JP/JP]; 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP).

(71) Applicant and

(72) Inventor (for all designated States except US): KUMAKI, Daisuke [JP/JP]; FINE-LIFE OHKURA #202, 19-17, 5 cho-me, Ohkura, Setagaya-ku, Tokyo, 1570074 (JP).

(72) Inventors; and

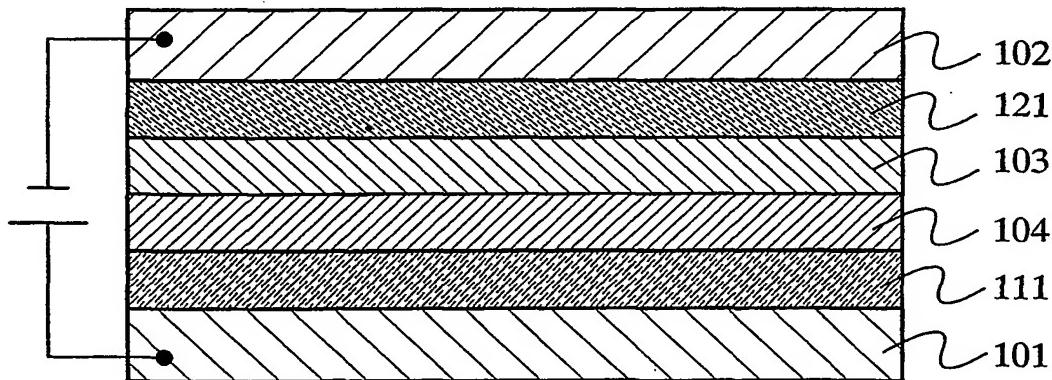
(75) Inventors/Applicants (for US only): IKEDA, Hisao [JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398, Hase, Atsugi-shi, Kanagawa, 2430036 (JP). ABE, Hiroko [JP/JP]; c/o SEMICONDUCTOR ENERGY LABORATORY CO., LTD., 398,

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LIGHT EMITTING ELEMENT AND LIGHT EMITTING DEVICE



WO 2005/115060 A1

(57) Abstract: A light emitting element of the invention includes n pieces of light emitting layers (n is a natural number) between first and second electrodes. A first layer and a second layer are provided between the mth light emitting layer (m is a natural number of $1 \leq m \leq n$) and the m + 1th light emitting layer. The first and second layers are contacted to each other. The first layer contains a substance that transports holes easily and a substance with an electron accepting property. The second layer contains a substance that transports electrons easily and a substance with an electron donating property. Molybdenum oxide is used as the substance with the electron accepting property.